

## ABSTRACT

The present invention relates to a method and a system for establishing secure and trusted communications over computer networks. TREM (301) resides on a computer hardware server inside the enterprise data center. The ICS module (302) of the present invention resides on a participant PC. TREM (301) serves as the control center and inspects and validates identification card information, validates virtual security officer(s) (303) signatures, determines if the request being received is from an authenticated user, determines placement of non-trusted data received based on rules and policies, encrypts/decrypts transmission data, keeps audits of all activities performed in the system, and notifies other authorities for alternative processing to handle non-trusted data. The virtual security officer(s) (303) module of TREM (301) replaces cumbersome certificate authorities. The ICS module (302) performs certain functions including participant self-registration, creating private signing key and verification, performing authentication of the participant, generating MAC for data integrity, placing electronic signatures, and encrypting/decrypting transmission data.